



Electric Vehicle Charging Stations: Advancing Smart Transportation

David Schatz

Director, Public Policy

November 8, 2017



The Nation's Largest and Most Open EV Charging Network



Largest Community of EV drivers

- + 70% of new EV drivers join every month
- + A driver plugs into our network every 2 seconds



41,000+ Spots

Charging Everywhere

- + 41,000+ charging spots
- + 28M charging sessions
- + 600+ ports added every month

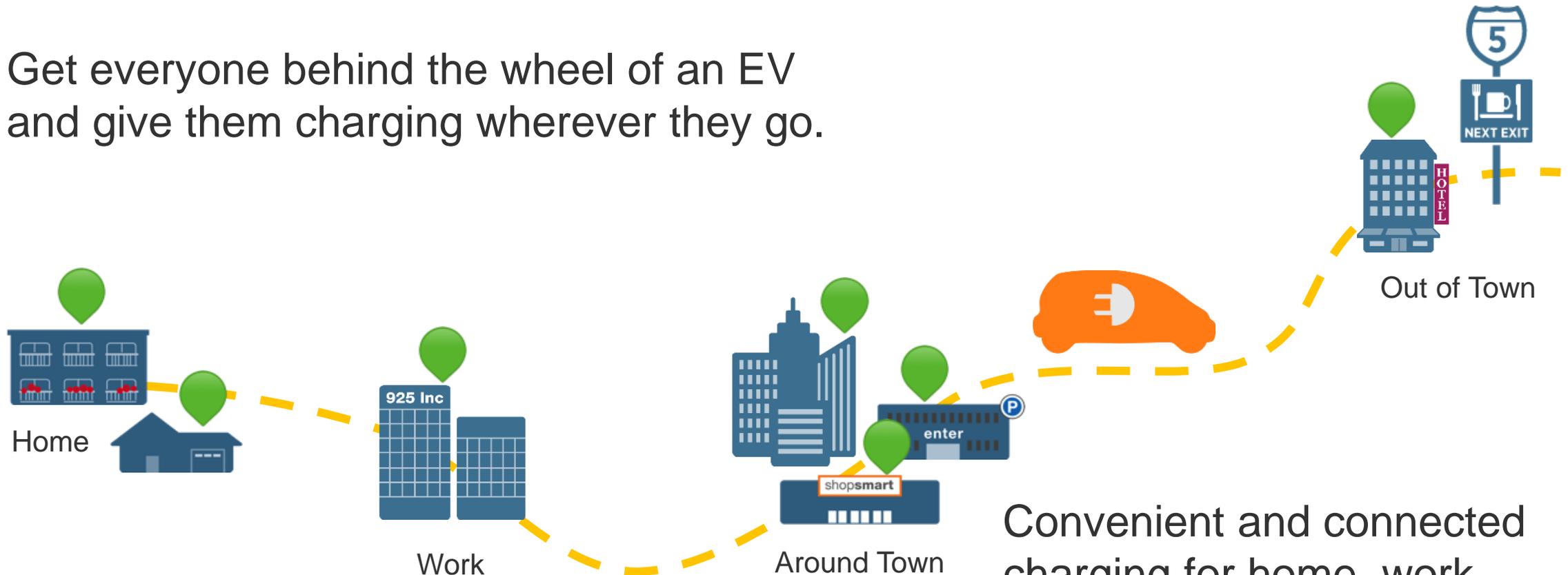


We're Established and Growing

- + ~\$300+ million in funding
- + Recent Daimler, Siemens investment
- + Market leader

Our Mission: EV Charging, Everywhere

Get everyone behind the wheel of an EV and give them charging wherever they go.



Convenient and connected charging for home, work, around town and out of town.

The Charging Network of the Future



Bringing the ecosystem together in a platform where drivers charge up and benefit businesses.

Charging stations are **independently owned**, and ChargePoint provides the network solution to empower site hosts.



Smart Charging is 21st Century Infrastructure



- + Transportation is getting autonomous, electrified, and shared.
- + States must prepare for mass electrification and charging.
- + States that embrace innovation and competition will attract private investment and advanced tech.

Charging Stations: Deployed Nationwide



EV Charging 101



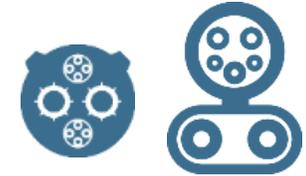
EV Charging Basics



Level 1



Level 2

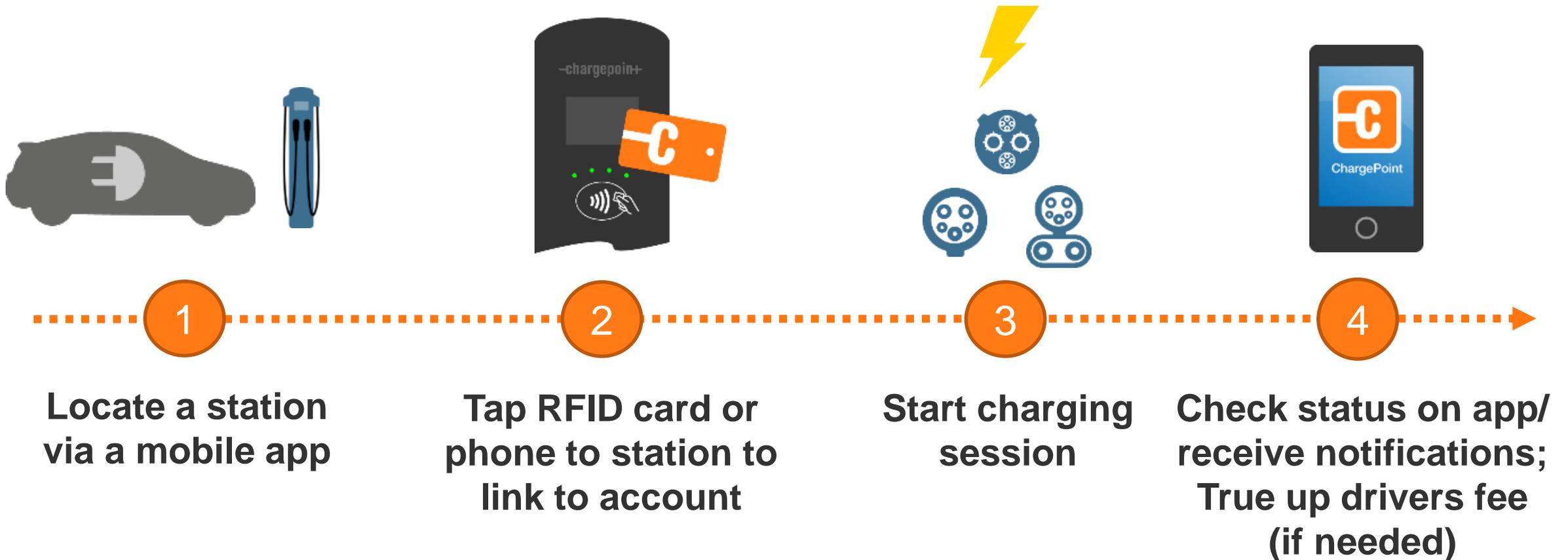


DC Fast

	Level 1	Level 2	DC Fast
Electrical Specs	120 Volts AC 12 – 16 Amps (home appliance)	208/240 Volts AC 16-32 Amps (home washer/dryer)	208 to 480 Volts DC 70 – 125 Amps, Three phase
Range Per Hour of Charging	~3 – 5 miles	~12 – 25 miles	100 - 200 miles +
Typical Time for Full Charge ¹	18+ hours	~2 - 4 hours	~15 - 45 mins

1. EV with 80 mile range (average of Top 8 Selling mass-market EVs in 2016)

A “Connected” Charging Session



Connected EV Charging – Value for All

EV Drivers



- Availability
- Information
- Convenience
- Seamless payment
- Consistent user experience

Site Hosts (Commercial)



- Maximize utilization
- Customizable tools
- Simple operation
- Limited administration
- Continuous upgrades
- Ensure uptime

Utilities



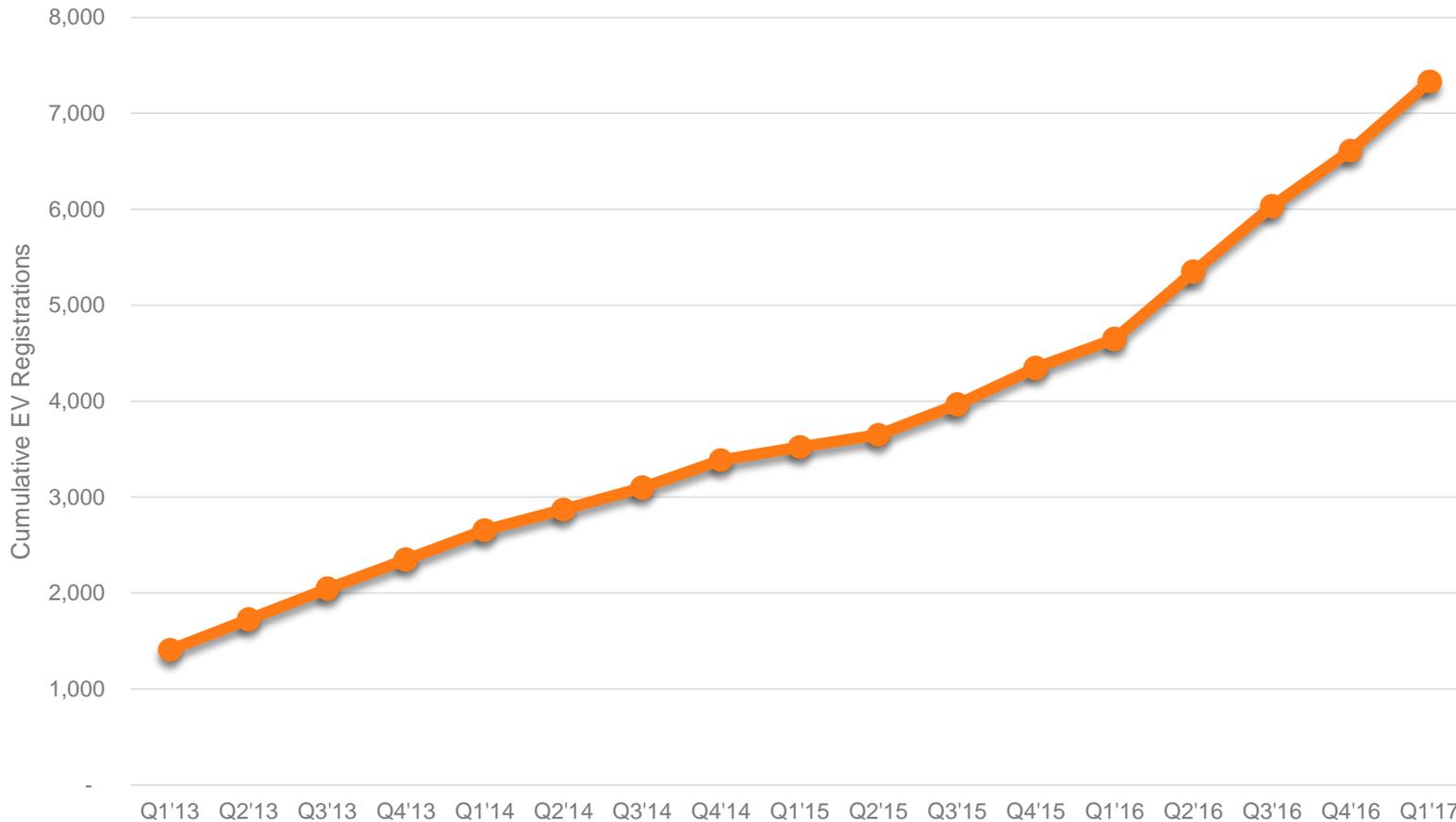
- Support EV adoption
- Visibility into the grid
- Data for load forecasting
- Load Management
- Flexible lever
- Seamless integration

A long-exposure photograph of a highway at night. The image shows light trails from cars, with bright orange and yellow streaks from taillights and white streaks from headlights. The road surface is dark, with white dashed lane markings and red double-line markings. The overall scene is dynamic and conveys a sense of motion and speed.

EV and EVSE Market Data and Trends

NC Example: Electric Vehicle Growth is Strong

North Carolina Electric Vehicles by Quarter, 2013 to Present



✓ 7,800+ on the road

✓ 48% YOY Growth

➤ .06% of all NC cars

EV Models in USA

PHEV



Plug-In Models



30+ currently available
with many more coming in 2017

BEV



BEV with DC Fast Charge



Upcoming EV Models

PHEV

MINI Countryman PHEV



Est. 2017

KIA Niro PHEV



Est. 2017

KARMA PHEV



Est. 2016

MERCEDES E350e



Est. 2017

mitsubishi Outlander



Est. 2016

HONDA PHEV



Est. 2018

VOLKSWAGEN CrossBlue



Est. 2017

HYUNDAI Ioniq PHEV



Est. 2017

Range Rover PHEV



Est. 2018

BEV

PORSCHE Mission E



Est. 2019

AUDI e-tron Quattro



Est. 2018

VOLKSWAGEN BUDD-e



Est. 2018

JAGUAR i-Pace



Est. 2018

Aston Martin RapidE



Est. 2018

TESLA Model 3



Est. 2017

BENTLEY EV



Est. 2018

VOLVO EV



Est. 2019

HYUNDAI Ioniq BEV



Est. 2017

HYUNDAI Ioniq BEV



Est. 2017

MERCEDES EVA



Est. 2018

BMW iNEXT



Est. 2020

BYD Qin



FORD EV



Est. 2018

McLaren P1 electric



Est. 2018

HONDA EV



Est. 2018

INFINITI LE



FARADAY FUTURE EV



Est. 2018

NEXTEV EV



Est. 2018

LUCID EV

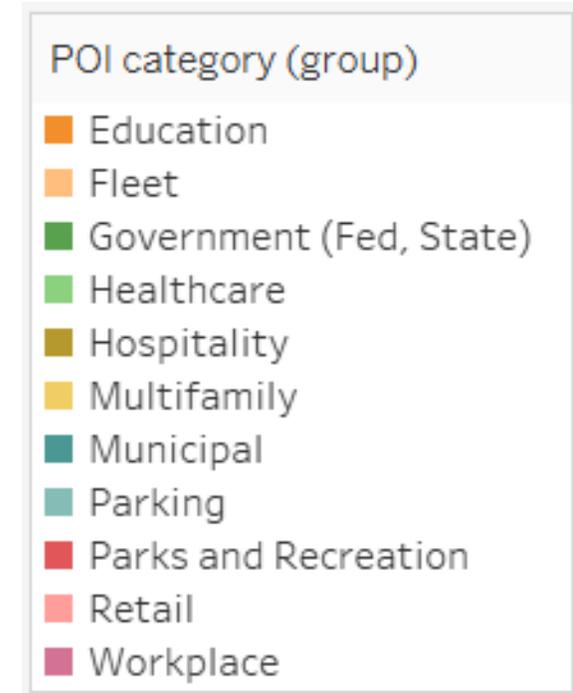


Est. 2018

Supporting EVs: More EV Charging Needed

- + Current Ratio of Cars to Public Charging Stations = **15 to 1**
- + Private Investment enabled **positive YOY growth** of charging infrastructure in all states
- + **Workplace/Municipal** are critical to early markets
- + **Key Targets** for Future Deployments: Multifamily, Corridor, Government, Fleets
- + Markets with **rebate programs have fastest deployments**
- + **Greater deployments of electric buses** and upcoming trucks

Current ChargePoint Deployments by Category



Competitive Market for EV Charging

- + North Carolina's market for EV charging is served by a competitive market that has been deploying in the State for nearly 10 years.
- + Site hosts currently choose from a range of products and services from multiple providers.
- + Protecting that competitive market is critical, as it keeps costs low and maintains an innovative sector.

Preparing for Future EV Growth

1. Set goals for EV sector
2. Support EV charging deployment
3. Utility engagement
4. Clarify regulations
5. Start with government fleets
6. Incentives work

400+ EV Charging Stations in NC



Opportunity: VW Environmental Mitigation Trust

- + NC has a **\$92M** allocation from VW settlement.
- + Must be used on projects to decrease emissions.
- + **Up to 15%** of total allocation can be used on EV charging.
- + In NC's case, can result in nearly **\$14M for EV space**.
- + VA has already taken steps to utilize 15% for charging statewide.
- + Many states already indicating 15% for charging.

Could put
hundreds of EV
chargers in NC



Thank You

For more information, please visit <http://chargepoint.com>